






Multi-Band Radio Project

Issue Background

Interest in public safety two-way radio communications in the early 1930s generated a surge in the construction of public safety systems. Over the years, this surge led to shortages of channels in a single radio band. In response to the growing need for spectrum, the Federal Communications Commission identified additional bands for the expansion of new and existing systems. The inclusion of additional bands created a new communications gap; public safety agencies began to experience the inability to communicate with others operating on the new bands. Early generation equipment was designed to operate on one band, thus agencies required additional equipment to communicate with those operating on other bands. While some agencies swapped or shared radios, others employed time-consuming methods to exchange information, including relaying messages through dispatchers or using runners to hand-carry messages. Until recently, no public safety radio existed that was capable of operating on more than one band.

Multi-Band Radio Project

In 2008, the U.S. Department of Homeland Security's (DHS) Science and Technology (S&T) Directorate awarded a \$6.275 million contract to Thales Communications, Inc. to demonstrate a multi-band radio (MBR) that enables emergency responders to communicate with partner agencies—regardless of the radio band on which they operate. The MBR is capable of operating in bands between 136 and 870 MHz, including the primary public safety bands—150-174 MHz and 450-512 MHz—as well as the 700 MHz and 800 MHz bands. Additionally, when authorized, the MBR is capable of operating on the Department of Defense (DoD) bands in the 138-144 MHz and 380-400 MHz ranges as well two Federal Government bands: 162-174 MHz and 406.1-420 MHz. The table below depicts the MBR's ability to connect local, tribal, regional, state, and Federal counterparts with a single radio:

Frequency Bands	138-144 MHz	150-174 MHz	162-174 MHz	380-400 MHz	406-420 MHz	450-470 MHz	470-512 MHz	700 MHz	800 MHz
Local and State Public Safety Agencies									
Department of Defense (DoD)									
Federal Agencies (non-DoD)									
Multi-Band Radio									

Carrying a price tag of \$4,000-\$6,000, the MBR is comparable in size, weight, and cost to existing portable radios with similar features. To communicate with another agency, users simply select a pre-programmed channel, or program other authorized channels.

Field Tests

The S&T Directorate's Office for Interoperability and Compatibility (OIC) will test and evaluate the MBR through demonstrations and pilots nationwide. These efforts will focus on testing the radio's operation across multiple systems—analogue, conventional, digital, and Project 25 trunked—and multiple public safety agencies, including local, tribal, state, and Federal including the DoD. During these field tests, the primary users of the new technology will likely be responders in a command and control role or those involved in special operations that need to interoperate with multiple entities. These users include incident commanders, emergency responders across all disciplines, and Federal officials who have a need to communicate with other agencies.

Customer Requirements

To successfully support emergency response communications and operations, it is essential that technologies align with user requirements. In keeping with its practitioner-driven approach, OIC will work closely with DHS customers to identify future MBR capabilities or expanded capabilities to meet operational requirements. Future capabilities may include, but are not limited to, personnel tracking, seamless interfaces with other wireless devices, and other capabilities.

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Through a practitioner-driven approach, the Science and Technology Directorate's Command, Control and Interoperability Division (CID) creates and deploys information resources—standards, frameworks, tools, and technologies—to enable seamless and secure interactions among homeland security stakeholders. With its Federal partners, CID is working to strengthen capabilities to communicate, share, visualize, analyze, and protect information.